

12 VAC 5- 640 Alternative Discharge Regulations TAC
July 27, 2011

Committee members present: Dave Davis, DEQ; Jeff Haas, ACEC; Rick Blackwell, VSPE; Jim Pyne, VWEA; Bob Marshall, VDH; David Wachsmann, VEHA; Bob Lee, VOWRA; Ed Gorski, PEC; Chris Beatley, manufacturer's rep.; Burt Tuxford, DEQ; Walter Bailey, VDH; Marcia Degen, VDH, Chair.

Visitors present: Jim Bowles, VDH; Todd Borden, PE

Meeting convened at 10:00 a.m.

Introductions

Minutes of last meeting approved with no objections.

Wetlands Discussion

At the July 14th meeting, VDH and DEQ were asked to discuss access control, easements and effluent quality for wetlands and report back. A summary of that meeting is attached to these minutes. A copy of the meeting summary was distributed to the TAC.

Discussion of access control: A diffuser below the surface of the wetland can be allowed, but it is likely that a VWP permit would be required from DEQ. DEQ suggested that the maximum depth of installation be 18 inches to ensure it is located within the "wetland" and not in groundwater. Wetlands are characterized by their upper 12 to 18 inches of soil and that is the basis of the suggestion. The VSPE rep. thought that definition is confusing, as any water below surface is "ground water" not "surface water", trying to "shoe horn" something in that doesn't fit. DEQ responded that going below 12 to 18" puts the discharge point into ground water, not surface water. VOWRA questioned why do we need access control if a 10/10/100 effluent is to be required because that is the same as the water reuse requirements. VDH responded that contact with minimally diluted effluent is a public health concern and controlling access in wetlands is consistent with the current regulation for controlling access in other minimally diluted situations like dry ditches. The Water Reclamation and Reuse standard for Level 1 is 10 mg/l BOD5, but also requires a turbidity less than 2 NTU prior to disinfection in order to obtain the fecal coliform standard of 14 as a geometric mean so it is a much more stringent limit than what is proposed for these permits.

Discussion of easement: VDH had constructed a rationale for setting a 250 foot buffer based on that scenario providing a 10:1 dilution by calculating a minimum amount of pore space (35%) in the upper 12 inches of the wetland. VWEA pointed out that the logic doesn't hold up in all wetlands and that diffusers in wetland saturated soils would be likely to fail, hard to maintain, and effluent could still surface. VWEA thinks that wetlands may be too problematic to be considered in a general permit.

There was some discussion about whether VDH can issue a permit beneath a wetlands where a clay lens is cut through and a drainfield is installed below the wetlands in a sand lens. DEQ noted that it may be possible to get a VWP permit for the activity, cutting through impervious lens and installing below a wetland, if the wetland could be restore. It was noted however, that the system would be installed in groundwater and the Groundwater Standards (9 VAC 25-280) would apply.

A suggestion was made that a constructed wetland prior to natural wetland be required to minimize impact on surface/ground water. It could have an emergency overflow, but normally would not discharge. There was discussion that sampling would be required prior to the constructed wetland to ensure that the effluent was being treated properly as it would be difficult to obtain a sample at the end of all treatment. VOWRA questioned how that would be different than just putting drip in the natural wetlands. The discussion was that the constructed wetlands would provide a final treatment unit that is passive and it would provide access control.

VDH brought up some concerns about the potential of freezing, especially in a flat area where tubing isn't evacuated.

Discussion about whether a wetland is the same as a marsh or swamp. VSPE representative maintains that this would be a change to what has been required, and is taking away an option that has been available in the past. DEQ: definition of wetlands has not changed.

PEC representative points out that we are trying to allow something that can't be done now – the technology is not there to support. VSPE rep continues to believe that VDH should not be issuing discharge permits to wetlands, but should issue onsite permits.

The chair asked for vote on whether to pursue. Most appear to wish to pursue but recognize that there are difficulties. VOWRA notes that the regulations have to be real guidelines and standards. VWEA notes that the crux of the issue is access control. Minimizing access is not eliminating access.

Visitor, Todd Borden, suggested discharging to surface just outside of wetland. There was some discussion about whether that would be required to meet onsite vs. discharge requirements.

VSPE comments that currently, regulations seem to require that must have 1% slope away from discharge point. VDH noted that those slope restrictions are under the dry ditch and intermittent stream section.

There was discussion that an owner could apply to DEQ today for an individual discharge permit. The cost is higher, effluent limits are more restrictive and monthly monitoring required. DEQ wetland program focuses on construction impacts to wetlands. The environmental impact, from the DEQ water quality aspect, is nitrogen and phosphorous impact to surface water.

VSPE claims that VDH is trying to restrict options that provide better treatment than currently required. The regulations could back way off from the proposed standards and still improve situation. PEC notes that alternative systems only provide cleaner effluent if maintained.

The chair then closed the discussion on wetlands and summarized where the TAC stood:

- Dry ditch standard is most appropriate.
- Reliability needs to be an important part.
- VDH is always going to look for access control
- Must be written broadly enough to provide some flexibility.

The VDH chair asked the committee to send suggestions to her on access control and easements. The intent on the easement was to try to achieve 10:1 dilution.

VSPE asked if there are two applications required if a wetland discharge is desired. DEQ says yes – the VPDES discharge permit issued under 9 VAC 25-110 and most likely a VWP permit for the construction activity in the wetland under 9 VAC 25-210.

Reviewed draft of sections through 220.

The chair reviewed the changes that are mostly modifications to reflect administrative/legal changes. In section 30, the O&M manual requirement for new systems—only applies for systems permitted after the effective date of the regulations – was added. The wording was refined when a discharge permit could be accessed—must rule out TL2 and TL3 systems for onsite. Propose to make regulations stand alone rather than supplemental to SHDR, so applicable sections of those regulations are now included. Similarly, sections from SCATS regulations are included. New section 50 was added to reference new fee regulations.

Definitions will move to section 10 to comply with new regulatory format. VDH tried to clean up definitions so that they agree with those in the Code of Virginia and in other regulations.

VSPE proposes to delete “naturally occurring” from the dry ditch definition. There was a suggestion to include language “must tie in to natural feature at end of easement”. VDH suggested that those types of modifications may work better in the body of the regulation rather than in the definition.

VSPE representative stated that there are two definitions of VPDES permits that need to be reconciled.

NPDES definition was suggested upon legal review. Some question about whether it is needed, but the term is used in definition of “VPDES.”

A suggestion was made that if wetlands are included, the limit of installing a diffuser to a maximum 12 to 18” depth needs to be included.

Edits in enforcement sections come from legal review. These sections need to be tied in to civil penalties.

VDH should undelete definition of “person” As it is used.

Civil penalty section will come under sections on enforcement of regulations, maybe just at end of current text.

Section 220 through 340.

These sections are predominantly the procedural part of regulations. Took information from VSPE and made modifications. Language was added that construction permits must be re-evaluated if general permit requirements change.

The new language allows transfer of operation permits. VDH would need same information as required by the DEQ transfer application plus a maintenance contract. VSPE comments that restricting construction permits takes away ability to sell property. VOWRA suggests splitting into two subsections and determine needs to transfer a construction permit.

230.C.5 which required a copy of the general permit with the application was taken out. Require copy of plat with construction application, can be waived. Under 230.E, the intent is to allow either VDH or a private consultant to do site evaluation. The DEQ representative requested that the regulations require that a copy of VDH denial letter of a discharge point be forwarded to DEQ to avoid any confusion.

The TAC reviewed the changes to the combined application and briefly discussed whether to include application in regulations. The general consensus of the committee appeared to be to not include the specific application form. DEQ noted that it is listed as an appendix in LIS. In DEQ’s experience, changes can be made to the application without going through the APA process. An agency just needs to notify LIS and upload the new form.

Some info has been stricken, such as , “what type of system will be installed?” as that is premature on an initial application.

VSPE asks if slope requirement on application is required by regulations, requests that PEs have the ability to modify or create channels to maintain slope.

Suggestion to change “real estate agent” to “agent” as is on SHDR application. Delete name of purchaser?

Comment from VDH that there is no need to reissue OP every time a new general permit is issued.

Section 240.

Requirement for providing verification of being registered under the General Permit has been moved here. Includes list of information that must be included for construction permit; e.g., what must be included on plans and specs. Item 7 now refers to section 470, which will be modified to agree with SCATS regulations.

Section 250

This section reiterates the requirement for a general permit. It also eliminates the terms of experimental, preliminary and general approval and uses only general approval or not generally approved. Regarding the exception for a failing onsite sewage system, it allows exceptions to the siting requirements. VDH plans to add a requirement that owner must request the exception(s) in writing.

VDH plans to move current section 300 et al (OP) to before denial of construction permit; order should be more logical.

VOWRA raised the issue of where permanent pump and haul fits—must it be considered before applying for alternative discharge permit? VDH pointed out that the ability to obtain a permanent pump and haul permit is not statewide and that most localities only allow them on a temporary basis. A suggestion was made that VDH might be able to tweak the application to ask about compliance with all local ordinances.

Section 300. Now includes verbiage from SCATS and requires PE (only) to sign completion statement. The latter requirement is intended to clarify that the PE is responsible for ensuring that the system is installed correctly and that required documents are submitted to VDH. The VSPE representative stated that they rely heavily on contractor for as built drawings.

Potentially will add language about what a VDH inspection includes.

Section 350. Original regulations had a three-step process for system approval that was complex. That system never worked well. This amendment is intended to streamline the process and make it more reflective of what we are now doing. TAC had previously pointed out that there are no “general approved systems”, just generally approved units; suggested that all systems be tested quarterly for a period to demonstrate compliance.

For biological treatment units, recognizes existing policies for TL2 & TL3. The designer may submit something that is not generally approved, but must submit sufficient documentation. If don't have 12 months of effluent data, must submit data to show that system will work. Rick Blackwell states personal opinion that many generally approved systems do not meet the standards for which they are approved.

VSPE would like to see VDH get completely out of approval process and just rely on performance. Mr. Blackwell says a lot of engineers who are not as knowledgeable as he is just pick the cheapest unit and put him at a competitive disadvantage because of his knowledge.

VDH suggested an alternative where a system comprised of components that follow strict engineering practices, recognize that and reduce start up testing requirements. Committee seems to leaning toward requiring start-up testing for all systems. VSPE comments that some discharge systems are designed to never discharge and can't be sampled at the end of the system.

VSPE comments that when designing a big system, the engineer is responsible if system doesn't work. General approval allows PEs to avoid liability because design is meeting the minimum standard because VDH has already said that units are approved. VDH should allow professional engineering judgment—some engineers should not be practicing in this field—VDH is not getting the best engineering because VDH is not holding PEs to a standard. Engineers purposely do not design good systems because of economics.

Chris Beatley commented that he appreciates what VDH is trying to do with this section: trying to protect public health and homeowners. Unfortunately, if one system that doesn't work is on the list, that seems to

be the one a lot of engineers will pick. It's important that VDH follow GMP 147 and not skip some sections.

VOWRA comments that manufacturers and operators could tweak systems to allow for variability between specific installations.

It was also noted that 32.1-163.6 must be incorporated into the regulations.

Wrap Up

This is the last TAC meeting. A draft will be forthcoming for the TAC's review within the next two weeks. The regulations must move out of VDH and to the Secretary's office by September 25th. VDH is working off the schedule that the draft must be done around September 1 to make it through OAG and the Commissioner's office. The TAC will have at least one round of comments on the final draft. VDH will consider another meeting if needed to iron out any last minute issues, but time is very short.

The VDH chair thanked everyone for their participation and comments.

Meeting adjourned at 2:45.

DRAFT

Meeting Summary

DEQ & VDH

July 20, 2011

Topic: Use of Wetlands as Discharge Points – Construction Considerations

Attendees:

DEQ: David Davis - Wetlands Manager
Burton Tuxford, Water Division – General Permit Coordinator

VDH: Marcia Degen – Technical Services Administrator
John Aulbach – Technical Services Engineer

Summary submitted by Marcia Degen, VDH

VDH is proposing to add wetlands as a discharge point to the Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings (12 VAC 5-640). In these existing regulations, VDH has added additional construction and treatment standards for other sensitive discharge points such as dry ditches and intermittent streams. VDH is considering what standards are needed to address public health concerns with these potential discharge points and initiated a discussion with DEQ wetlands experts to obtain their input on what might be appropriate standards.

Access Control

Of particular concern to VDH are the control of access to the discharge point to reduce the potential for humans and pets to come in contact with effluent that is only minimally diluted with the wetlands. Given the slow moving nature of most wetlands, there is not a rapid initial mixing as one would have with a free flowing stream. The regulations note that a 10:1 dilution is desirable.

One method of controlling contact is to release the effluent subsurface through a diffuser. The diffuser could be designed to spread the effluent out so that maximum mixing occurs with the wetland. DEQ noted that a VWP construction permit may be required depending on the extent of the disturbance. VDH raised the question of depth of installation. How deep could one go with such a diffuser and still be in the wetlands? DEQ noted that wetlands are defined based on their characteristics in the top 12 to 18 inches of the natural soil and recommended that the maximum depth of installation be 18 inches.

With regard to constructing such a subsurface diffuser, VDH asked if there were seasonal construction limits. DEQ noted that their VWP permits require construction to be conducted 'in the dry'. In the dry may be obtained artificially by temporarily containing/draining the area such as use of a coffer dam or by constructing only during the dry season. It was noted that most wetlands will be dry at the surface sometime during the year.

Other means of controlling access are also available such as fencing, rip rap, etc. Each of the other methods would have to be evaluated by DEQ for a VWP construction permit.

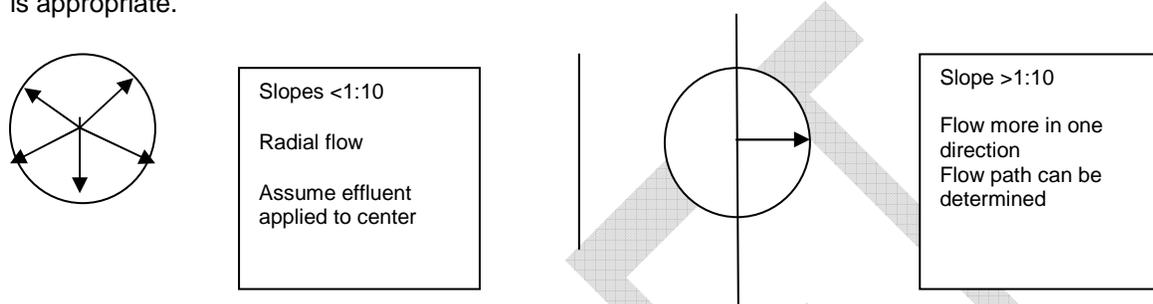
Easement

For dry ditch and intermittent stream discharges, an easement along the flow path of 500 ft is required with the option to reduce that to 250 ft with increased treatment. VDH recognizes the potential for impact to downgradient land owners and believes that an easement/buffer is needed to adequately protect neighboring properties.

One problem with determining an easement however is flow direction. For dry ditches, the surface contour can be used to identify the flow path and the appropriate direction for the easement. For wetlands, the flow direction is not always obvious. DEQ noted that for wetlands where there is topography, you can

determine a flow path. These are generally wetlands located west of I 95 or where there is greater than 1:10 slope across the site. Where there is less than 1:10 slope, the flow path is not as evident and it may be more radial than unidirectional. It was recommended that the 1:10 slope be used as a cut off. If that or above, the flow direction can be estimated and a more unidirectional flow path is appropriate. If the slope is less than 1:10, the flow path is not evident and should be assumed to be radial. It may be feasible to do a piezometer study to determine the flow path for flatter sites, but details of how to conduct that study were not discussed.

The shape and size of the easement were discussed next. Generally a circle of a defined radius is suitable for slopes less than 1:10. For sites with slopes greater than 1:10, a semicircle of defined radius is appropriate.



In determining the size of the easement/buffer, VDH wanted to consider the available water in the pore space of the wetlands that would be available for dilution. VDH consulted a basic soil books (The Nature and Properties of Soils by Nyle C.Brady, 9th edition, 1984. Macmillan Publishing). In that book on page 54, it noted:

Sandy surface soils show a range of 35 -50%, whereas medium- to fine-textured soils vary from 40 to 60%- even more in cases of high organic matter and marked granulation. Pore space also varies with depth; some compact subsoils have as little as 25-30%.

In order to be conservative, VDH proposes to use the 35% pore space figure. Using that figure then, VDH calculated the following:

Assume a one foot depth of wetlands available for mixing.
Assume a 250 foot radius.

For a circle with 250 foot radius and a one foot thickness, the circle would be 196,350 cf ($\pi(250)^2 \times 1$ ft deep= 196,350 cf).

Assuming 35% of the volume is water, then the water volume is 0.35 x 196,350 cf or 68,723 cf.

Convert cf to gallons by dividing by 7.48 gallons per cf to obtain a total volume of 9,187 gallons available for dilution.

Assuming that the goal is to ensure a 10:1 dilution, then at least 10 times the average volume must be available. For a 3 bedroom home, that volume is assumed to be 450 gpd so ten times would be 4500 gallons or half the circle.

In order to obtain dilution for 1000 gpd, the radius must be increased to obtain 10,000 gallons in the pore space or 261 feet. ($(\pi(2610)^2 \times 1$ ft deep) x.35/7.48 = 10,000 g). It is rare that flows up to 1000 gpd are authorized for single family homes and therefore VDH recommends using a 250 ft radius for the buffer/easement. The 250 ft radius from the discharge point must be all on the owner's property or

controlled by easement. The circle may be reduced to a semi circle if flow direction is established on a site with slopes >1:10.

Effluent Limits

DEQ and VDH agreed with the TAC recommendations of applying the same discharge and reliability requirements to wetlands discharges as were required for dry ditch/intermittent stream discharges. There was no additional discussion.

VDH questioned the impact of the Chesapeake Bay Preservation Act on the ability of discharges to wetlands to occur. DEQ noted that there are numerous local ordinances that address wetlands, setbacks, and in some cases, prohibit discharges, that would still be in effect. This regulation would not overturn those local ordinances. DEQ suggested that the application include a statement that the design complies with local wetlands ordinances or a copy of the local government's approval.

Summary:

Subsurface diffuser installations shall be limited to a maximum depth of 18 inches

All proposals for restricting access must be evaluated for DEQ for a VWP permit.

Flow direction can be determined on sites with slopes 1:10 or greater.

Radial flow direction for flatter sites should be assumed unless a flow direction study is conducted.

Use of a 250 ft radial easement is a conservative measure to provide 10:1 dilution of the effluent prior to it leaving the controlled property. The shape of the easement is either circular on flat sites (slopes <1:10) or a semicircle with a 250 radius on sites with slopes 1:10 or greater.

Use of the dry ditch/intermittent stream discharge requirements for effluent limits and reliability are appropriate for wetlands as well.

Amend the application to require local wetlands signoff on the design or otherwise ensure that the design complies with local ordinances.